

ABSTRACT

Multipath signals (rays) emanating from an object of interest are processed to locate the object. Multipath signals may be accepted, screened, and associated with a specific object by an observer. Information (time, amplitude, and angle information) may be recorded for each ray. A set of incoming rays associated with a signal from an object are traced back toward the emanating object generating traceback ray segments. Candidate crossings of ray traceback segments are tested for time and/or amplitude consistency with ray information, and candidate crossings with inconsistent amplitude and/or time information may be eliminated from consideration. If there is only one candidate crossing remaining, it may be used to define the object location. Otherwise, the remaining crossings may be grouped, each grouping with a crossing cardinality, and location. Multiple crossings of multiple rays may be grouped into clusters with a cluster cardinality and diameter. The location may then be determined using crossing cardinality, cluster cardinality, and/or cluster diameter.